

ABSTRACT

Apparatus for transmitting a digital signal within, for example, an integrated circuit includes a signal transmission line with a directional coupler at one or both ends. The directional coupler blocks the direct-current component of the digital signal while transmitting the alternating-current component, including enough higher harmonics to transmit a well-defined pulse waveform. A suitable directional coupler consists of two adjacent line pairs in materials with different dielectric constants. The apparatus may also include a driver of the inverter type, a receiver of the differential amplifier type, a terminating resistor, and a power-ground transmission line pair for supplying power to the driver. An all-metallic transmission-line structure is preferably maintained from the output interconnections in the driver to the input interconnections in the receiver.